CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NUMBER 90-122

AMENDMENT OF SITE CLEANUP ORDER NO. 89-107, ADOPTION OF FINAL CLEANUP LEVELS FOR:

FMC CORPORATION - GROUND SYSTEMS DIVISION
333 WEST JULIAN STREET
SAN JOSE, SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. SITE DESCRIPTION FMC Corporation (FMC), hereinafter called the discharger, owns and occupies a former manufacturing facility located at 333 West Julian Street, San Jose, Santa Clara County (Site, Figure 1, Appendix D). The site is centered on Old West Julian Street, bounded on the west by the Guadalupe River and on the east by Route 87, the Guadalupe Parkway.

2. SITE HISTORY FMC and predecessor companies have occupied the site since the early 1900s. Manufacturing was first conducted at this location by the Bean Spray Pump Company (pressurized pesticide sprayers) and the Anderson-Barngrover Manufacturing Company (agricultural machinery and food-processing equipment). The two companies later merged to form the Food Machinery Corporation manufacturing and assembling agricultural and food-processing equipment and during two separate periods manufactured and assembled military tracked vehicles. Manufacturing at the Julian Street location ceased in 1986. FMC still maintains the facility for records, equipment and parts storage.

   In 1986, FMC began environmental investigations of the Julian Street facility. Soil sampling in former manufacturing and product storage areas revealed the presence of petroleum hydrocarbons, VOCs and metals. Further investigations included the installation of groundwater monitoring wells which detected groundwater pollution in two shallow water-bearing zones below the southerly half of the site (Figure 2, Appendix D).

3. SITE INVESTIGATIONS To date, FMC has drilled and sampled over 100 soil borings, conducted a soil gas survey to help identify hidden potential pollutant source areas, performed a Hydropunch™ and cone penetrometer survey in 20 locations, and installed 26 groundwater monitoring wells in the A- and B-aquifers. Four remedial investigation reports have been submitted to the Regional Board prior to and following adoption of Site Cleanup Order 89-107: these are "Comprehensive Environmental Assessment Report, FMC Corporation, 333 West Julian Street Facility, San Jose, California, January, 1989", Evaluation of Interim Remedial Alternatives, 333 West Julian Street Facility, San Jose, California, November, 1989", "Remedial Investigation, FMC Corporation, 333 West Julian Street Facility, San Jose, California, January, 1990", and Remedial Alternatives Report, FMC Corporation, 333 Julian Street Facility, San Jose,

California, April, 1990" (RAR). The facility is currently under a quarterly groundwater sampling and analysis plan with results to date, from three calendar quarters.

On April 29, 1990, FMC submitted "Remedial Alternatives Report, FMC Corporation, 333 Julian Street Facility, San Jose, California" pursuant to Provision C.2.f. of SCO 89-107. The document proposed final cleanup levels for onsite polluted soil and groundwater. Board staff has reviewed the RAR and found it to be satisfactory. New information has recently come to light that indicates metal pollution found in the northwest area of Building 1 is more extensive than originally described in the January, 1990 RIR. Further investigation and analyses of this area are needed. This work and proposed soil cleanup may require demolition of the structure to allow access along the Guadalupe River bank and beneath the building foundation. FMC proposes pursuing VOC source removal and initiating the groundwater cleanup program. FMC proposes initiating final cleanup of all metal and TPH polluted soil pursuant to Provision A.5. of this Order Amendment. Alternate cleanup levels pursuant to Provision A.4. of this Order Amendment may be proposed for these additional metal polluted areas based on site specific tests or alternative cleanup technologies.

4. SITE POLLUTION Soil pollution has been characterized in several main areas of the site (Figure 3, Appendix D). VOC pollution has impacted the "South Yard Area" (Area 6, Fig. 3) in the southwest corner of the site near the Guadalupe River. This is a also a significant VOC source area for groundwater pollution. Other principal soil pollution locations onsite are illustrated in Figure 3, Appendix D. These include:

- Area 1, Building 1 - lead and copper
- Area 2, Building 1 - PCB, toluene and diesel
- Areas 3 and 4, Buildings 1 and 2 - BTXs, oil and diesel
- Area 5, Building 13 - Diesel, oil and TCA

Results of a soil gas survey and recently identified soil pollution areas of lead, copper and TPHs along the northwest side of Building 1 discussed in Finding 3 will be submitted pursuant to Provision A.3. of this SCO amendment.

Groundwater pollution has been identified in the upper two water bearing zones beneath the site; the A-aquifer between 20 and 30 feet below the surface and the B-aquifer from 45 to 60 feet below the surface.

Groundwater is polluted in two water-bearing zones by the following VOCs: vinyl chloride, trichloroethylene, 1,1,1-trichloroethane, cis- and trans-1,2-dichloroethylene, dichloroethane and tetrachloroethylene. The groundwater gradient in the A zone is to the northeast and has been shown to be seasonally recharged by the Guadalupe River. The B zone is not directly connected onsite with the A zone and contains VOC pollutants at lower concentrations. Groundwater flow in the B-aquifer is east to southeasterly.

5. REGULATORY ISSUES The Regional Water Quality Control Board, San Francisco Bay Region formerly adopted Site Cleanup Order 89-107 on June 21, 1989. The Order required the discharger to fully define the lateral and vertical extent of soil and groundwater pollution, conduct aquifer tests and obtain data necessary to evaluate

remedial alternatives and propose cleanup levels. FMC has satisfactorily complied with all prior tasks under Order 89-107 and is now ready to begin final site remediation upon adoption of cleanup levels as specified in Provision C.2.f. of SCO 89-107. This Site Cleanup Order Amendment promulgates proposed final cleanup levels for soil and groundwater.

6. This action is an order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the CEQA pursuant to Section 15321 of the Resources Agency Guidelines.

7. The Board has notified the discharger and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharger and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.

8. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the discharger shall cleanup and abate the effects described in SCO 89-107 and the above findings as follows:

A. PROVISIONS

1. The discharger shall continue to submit to the Board acceptable monitoring and status reports pursuant to SCO 89-107 and this Amendment that contain results of work performed according to a program as approved by and amended by the Board's Executive Officer.

2. The discharger shall comply with all Prohibitions, Specifications and Provisions of Order 89-107 and Amendments by this Board action in accordance with the following cleanup levels stated in this order Amendment. If it is found that these cleanup levels cannot be achieved through reasonable attempts, alternate levels may be proposed.

SITE POLLUTANT CLEANUP LEVELS

a. SOIL CLEANUP LEVELS FOR TOTAL PETROLEUM HYDROCARBONS

Cleanup of total petroleum hydrocarbon (TPH) polluted soils will be performed by excavation and disposal. Cleanup levels are based on regulatory guidelines which provide for remediation of polluted soils with TPH concentrations greater than 100 ppm. FMC shall remove polluted soil to TPH concentrations less than or equal to 100 ppm.

b. SOIL CLEANUP LEVELS FOR VOC POLLUTION

FMC proposes for the south yard area soil pollution cleanup by operating a soil vapor extraction system. Pollutant cleanup in this area will remove a significant VOC source that impacts the shallow groundwater zones. The following maximum VOC concentrations are proposed for soil cleanup by vapor extraction:

CHEMICAL	CLEANUP LEVEL(PPB)
PCE	200
TCE	45
1,1,1-TCA	2,300
1,2-DCE	16
1,1-DCE	23
Methylene Chloride	13
Freon 113	4,400

c. SOIL CLEANUP LEVELS FOR METAL POLLUTION

Metal pollution from past industrial practices impacts the soil at various onsite locations. The discharger performed site specific studies to determine metal concentrations that could remain in soil and not degrade shallow groundwater above MCLs. Site conditions suggest metal levels could be well above both TTLCs (Total Threshold Limit Concentration) and ten times STLCs (Soluble Threshold Limit Concentration) established for priority metals. The discharger proposes to use ten times the STLC as site cleanup levels for the following metals. Alternate cleanup levels may be proposed for the Building 1 Area upon analysis of site specific tests or by use of alternate cleanup technologies pursuant to Provision A.4. of this Order Amendment and will be approved by the Executive Officer.

METAL	CALCULATED CLEANUP LEVEL (PPM)	PROPOSED CLEANUP LEVEL (PPM) [1]
Arsenic	577	50
Barium	16,767	1,000
Cadmium	1,686	10
Chromium	26,123	560
Copper	98,754	250
Iron	158,162	158,000 [2]
Lead	25,580	50
Manganese	9,832	9,800 [2]
Mercury	119	2
Silver	8,428	50
Zinc	176,874	2,500

1) Ten times soluble threshold limit concentration except where noted.
2) Calculated target cleanup levels used where no STLC available.

d. CLEANUP LEVELS FOR GROUNDWATER

Groundwater in the A- and B-aquifers at the 333 West Julian site will be cleaned up by groundwater extraction, and treatment by air stripping and granulated activated carbon. Treated water may be reinjected to facilitate aquifer cleanup. If water discharge is part of the cleanup proposal, the discharger shall apply for an NPDES permit for surface water discharge to the Guadalupe River. The following cleanup levels (MCLs/ALs) shall be met for polluted aquifers:

CHEMICAL	MCL/AL - CLEANUP LEVEL (PPB)
1,1,1-Trichloroethane	200
1,1-Dichloroethane	5
1,1-Dichloroethylene	6
1,2-Dichloroethane	0.5
Trichloroethylene	5
1,1,2-Trichloroethane	32
Vinyl Chloride	0.5
Methylene Chloride	40
Tetrachloroethene	5
trans-1,2-dichloroethene	10
cis-1,2-dichloroethene	6

3. TASK: REMEDIAL INVESTIGATION REPORT ADDENDUM

Submit a technical report acceptable to the Executive Officer that presents data from additional site assessment work performed at 333 West Julian Street since submittal of the January, 1990 RIR. This report may include, but shall not be limited to, results from the soil gas survey, soil metal pollution characterization at the Building 1 area and analysis of VOC soil pollution found at Buildings 10, 12 and 13. This report may be submitted in its entirety as an addendum to the January, 1990 RIR.

COMPLETION DATE: November 30, 1990

4. TASK: REMEDIAL ALTERNATIVES REPORT ADDENDUM

Submit a technical report acceptable to the Executive Officer that evaluates alternatives for final remediation of additional site pollution areas reported under Provision A.3. of this Order Amendment and a summary of tasks involved and the leadtimes necessary for implementation of each alternative, proposed objectives for final cleanup and a discussion of the preferred remedial alternative.

COMPLETION DATE: May 30, 1991

5. TASK: FINAL REMEDIATION IMPLEMENTATION PLAN ADDENDUM

Following receipt of written approval from the Board on the proposed cleanup objective(s) and preferred remedial alternative(s) submitted under Provision A.4. of this Order Amendment, submit a workplan and time schedule for implementation. The time schedule shall include a date for submission of a technical report documenting the implementation of the final remedial measure(s).

COMPLETION DATE: 120 days following receipt of written approval from the Board on the proposed cleanup objective(s) and preferred remedial alternative(s) submitted under Provision A.4. of this Order Amendment.

6. TASK: SUBMIT FIVE YEAR STATUS REPORT

Submit a technical report acceptable to the Executive Officer containing the following:

1. The results of any additional investigative work completed,
2. an evaluation of the effectiveness of installed final cleanup measures,

3. additional measures to achieve final cleanup objectives and goals, if necessary,
4. a comparison of previously estimated costs with actual costs incurred and a revised projection of necessary tasks to achieve final cleanup,
5. the tasks and time schedule necessary to implement any additional final cleanup measures,
6. recommended measures for reducing Board oversight activities,
7. describe the reuse of extracted groundwater, if any, and,
8. evaluate and document the removal and/or cleanup of polluted soils and groundwater.

If final cleanup objectives have not been achieved through the implementation of the approved groundwater and soil remediation plans, this report shall also contain an evaluation addressing whether it is technically feasible to achieve these objectives with the approved remedial measures, and, if not, contain a proposal for alternative procedures to do so.

COMPLETION DATE: August 15, 1995

7. The above cleanup objectives are considered to be protective of surface and ground water quality.

8. Final cleanup work leadtimes will be as approved under Provision C.1.g. of SCO 89-107 and Provision A.5. of this Order Amendment.

9. This Board action amends Site Cleanup Order 89-107.

10. The Board will review this Order periodically and may revise the requirements as necessary.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on August 15, 1990.

Steven R. Ritchie
Executive Officer